



Issued by the

# Milwaukee Astronomical Society

December 1988

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## Season's Greetings

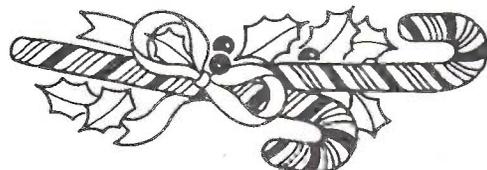
Another year will soon draw to a close and another will begin!  
 The officers and directors of the Milwaukee Astronomical Society wish every-  
 one of all faiths a pleasant holiday season and happiness and good health in 1989.

*Peace!*

## December Program-Meeting

This month's program will acquaint us with another type of astronomy.  
 In the past we've been introduced to radio astronomy, ultra-violet astronomy,  
 even archaeo astronomy! Attend the December meeting and learn about another  
 type as Donald Manley introduces us to neutrino astronomy in his talk by the same  
 name, "Neutrino Astronomy."  
 Mr. Manley is an assistant professor of physics with the University of Wiscon-  
 sin-Whitewater Physics Department.  
 Guests are also welcome.

**WHEN:** Friday, December 16, 8:00pm.  
**WHERE:** The Child and Adolescent Treatment Center (CATC) auditorium  
 9501 W. Watertown Plank Road, Wauwatosa  
 Site may be reached by Route 71 bus.  
 There is ample, well-lit parking nearby.



## New Members

Meet David, Robin, Sam, and Bess Ecoff, Wales; Pamela Foard and Lawrence D'Attilio, Brookfield; Karl Greeb, Neosho; Geffry and Peter Hansen, Milwaukee; Erin McCarthy, Waukesha; and Harry T. Whelan M.D., Noel, Perry, and Melissa, Whitefish Bay.

Everyone will be introduced at the December meeting.

## Calendar of Events

- Monday, December 12 - Board Meeting  
7:30pm at observatory.
- Friday, December 16 - December Program-Meeting.
- Friday, December 16 - January "Focal Point" deadline.
- Wednesday, December 21 - Winter begins at 9:28am CST.
- Friday, December 23 - Full Cold Moon.
- Wednesday, January 4 - First Wednesday at the observatory  
7:30pm (weather permitting). All members and their guests welcome.
- Saturdays - Observatory maintenance and improvements. Call 547-3400.
- Saturday Nights - Member's night at the observatory.  
Call keyholder.

## "Northern Lights"

"Northern Lights" the North Central Region of the Astronomical League quarterly newsletter will soon publish its January edition. Editor Ray Wendt will accept newsy or unusual astronomical items of general interest. MAS members receive "Northern Lights" free as a member benefit. Subscriptions are \$2.50 per year postpaid for four editions.

Send your item(s) and/or subscriptions to:

Ray Wendt, Editor  
4834 N. 70th Street

Milwaukee, Wisconsin 53218

## Here's An Offer You Can't Refuse!

The American Science Center, 5430 W. Layton Avenue, offers Milwaukee Astronomical Society members 10% off anything in the store. Bring your membership card.

American Science Center has a huge variety of optical goods, scientific apparatus, books, and hard-to-find items.

## Problems with the Publications?

Call Dan Koehler (662-2987) if you have problems with your "Sky & Telescope" magazine or any other publication you receive as a MAS member.

Canadian (Observer's) Handbooks should be available at the December meeting.

## Keyholders

Dec. 10	Jim Toeller	352-7144
Dec. 17	Virgil Tangney	327-7976

The observatory will be closed on Saturday, December 24 and Saturday, December 31. Call Dan Koehler (662-2987) if you wish to use the observatory during the Christmas and New Year's weeks.

Jan. 7	Paul Borchardt	781-0169
Jan. 14	Greggory Cieslak	744-5703
Jan. 21	Brian Ganiere	272-4649
Jan. 28	Chris Hesseltine	482-4515
Feb. 4	Lee Keith	961-8752

## Thanks to Apollo Fund Limited

The Milwaukee Astronomical Society will receive a \$2,500 donation to be used for capital improvements (hardware and construction purposes).

We greatly appreciate this generous contribution by MAS member Orin Purintun, president of Apollo Fund Limited, one of several given to us over the past years.

The contribution will be put to uses benefiting the entire membership.

## MAS Dues Increase

Members present at the November Program-Meeting voted to increase MAS membership dues ten dollars per year in all categories.

Treasurer Dan Koehler again presented his in-depth financial report and explained every detail. Despite MAS frugality, cash flow out is beginning to exceed cash flow in. Furthermore, there must be funds available for maintenance and improvement of our facilities.

### The revised annual dues will be:

\$40.00 for regular members (age 16 and over).

\$40.00 for "Family Plan" members plus \$1.00 for each additional family members.

\$25.00 for juniors (under age 16 as of September 1 of the current year).

\$30.00 for non-residents.

If you were unable to attend the September or November meetings and have Questions or comments regarding the above decision, please call Dan at (414) 662-2987.

## Library Notes

Library material may be withdrawn for member use on First Wednesday nights or on Members nights after calling the keyholder, or if necessary, by calling Sally Waraczynski at 321-0918. Enter your name, phone number, the date, and book titles on the available note pad. The time limit is one month. There is also a separate slide signout. Items in the vertical file are for reference only, for use only at the observatory.

Anyone planning to join the Astronomy Book Club should consider letting the MAS library sponsor his/her membership. The library receives a free book as a result.

The Observer's Guide features in-depth information on constellations. Great for amateurs. \$10.50/subscriptions. The 1989 Ottenwell Astronomical Calendar may be ordered for \$9.50 per copy. Call Sally at 321-0918.

## Observatory News

Owing to a 95% sunlit moon, the October 26-27 occultation of the Pleiades by the moon produced only a few star contacts and reappearances.

The Open House program is at an end for this year. Many fine evenings were responsible for a huge public turnout. There were two nights of 400 or more visitors. Over 500 people joined us when Mars was featured. We can thank the Milwaukee area press and TV and MAS volunteers for one of our most successful seasons.

## Please Note!

Members on record before June 1, 1988 who have not yet paid their dues must do so now or be dropped from the MAS roster.

Please send your remittance, made payable to the Milwaukee Astronomical Society, to Dan Koehler, W248 S7040 Sugar Maple Drive, Waukesha, Wisconsin 53186 (414-662-2987).

# Herschel Club's Finest Heavenly Bodies by Lee Keith

**Designations:** NGC 869 & 884, H336 & H346, h & X (Chi) Persei, "Double Cluster"  
**Specifications:** Double Galactic (Open) Star Clusters in Perseus (Epoch 2000.0)

869: R.A.: 2h 19.0m Dec: +57° 09' Size: 35' Mag: 4.4m

884: R.A.: 2h 22.5m Dec: +57° 07' Size: 35' Mag: 4.7m

**Location:** Between Cassiopeia and the "head" of Perseus, in the Milky Way.

**Right Angle Sweep:** From a Persei: sweep  $7\frac{1}{2}^\circ$  north, 1h 05m west.

## REFERENCES:

*Astronomy Magazine, Jan 84, p79:*

With binoculars or a small telescope, the field of view appears peppered with two areas of bright blue and white stars. With an 8" at 35x, a rich field surrounds several hundred bright A and B type supergiants. A few dim red stars show up in and around the clusters — these are [cool] M type supergiants.

NGC 884 is more distant than NGC 869, and much older. The former is 11.5 million year old and lies at 2.5 kpc (8,000 light years) distant, while the latter is only 6.4 million years old and 2.15 kpc (7,000 LY) away. Each is about 70 light years across and contains around 5,000 solar masses. Since each cluster contains only a few hundred [visible] stars, they are truly supermassive and superluminous. (At this distance, the Sun would look like a 16.7 mag [18.3 if dust obscuration is accounted for] star!!! A 53" telescope would be needed just to glimpse it on a good night!!!)

*Astronomy Magazine, Jan 80, p84:*

Although visible to the unaided eye and an easy object in binoculars, Messier strangely failed to include the Double Cluster in his famous list. Some say that it was too well known and obvious to ever be mistaken for a comet, and therefore was not logged by the Frenchman. If this is the case, what about the Beehive (M44) and Pleiades (M45) Clusters which were included?

Having been bypassed by Messier, it fell to the thorough surveys of William Herschel to catalog the Double Cluster during his great sweeps... The clusters are thus numbered 33 and 34 in his class IV — very compressed and rich clusters of stars. The work of this great observer and his son John formed the basis of the NGC or New General Catalog...

The NGC described the Double Cluster as "remarkable." Pickering included this duo in his roster of the 60 finest objects in the sky. We view [it] ...from 40 quadrillion (40,000,000,000,000,000) miles of interstellar space.

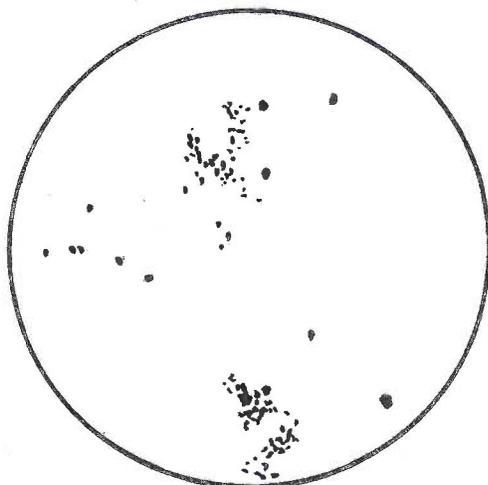
*Burnham's Celestial Handbook, p1438:*

The existence of the Perseus clusters was noted at least as far back as 150 BC; both Hipparchus and Ptolemy both mention the group, but refer to it as a "nebula" or "cloudy spot", one of the half dozen then recognized. ...Another mystery... lies in the fact that this splendid object was never included by Charles Messier in his famous catalog, although it was certainly known in his day... (see Astronomy reference above)

The Sun is located in one of the spiral arms of the system (Milky Way), and the Perseus cluster, the nucleus of a great swarm of giant stars, would seem to mark the next spiral arm going outward, away from the galactic center. The distance of the Perseus cluster is estimated... to be some 7,000 to 8,000 LY. ...our sun... would appear as a star of 16.6 mag ...it would... be further dimmed by dust in the intervening space, and would appear about 18.2! (Remember, a 1.3 meter telescope would be needed to just see the Sun!). Stars no brighter than our Sun are thus very difficult to detect at the distance of the cluster, and even fainter stars are completely out of range. The bright members, which present such a glittering spectacle in the small telescope, are all great blazing supergiants of almost unimaginable brilliance.

The brightest stars of the cluster thus have luminosities approaching 60,000 times that of the Sun, and are comparable to such supergiants as Rigel... NGC 869... is ...among the youngest star groups known.

The Double Cluster lies in the richest region of the Perseus Milky Way. "Here again we enter upon one of the most splendid portions of the Galaxy" says T.W. Webb. ...While observing in the area, note also the smaller cluster NGC 957, about  $1\frac{1}{2}^\circ$  to the ENE, described by C.E. Barnes as a "Field shot with diamond dust."



Eyepiece: 40mm  
Magnification: 56

## OBJECT DESCRIPTION

NGC No: 869 & 884

SIZE: 30' apart

MAGNITUDE: 4-5

## VIEWING CONDITIONS

DATE: 11/22/87

TIME: 2:50UT

SEEING: Average

TRANSPARENCY: 5.0 - 4.5mag.

OBSERVER'S NAME: Lee Keith

LOCATION: MAS Observatory

TELESCOPE TYPE: "B" 12.5" f/7.4

OTHER: Cold, windy, 30°F

## NOTES

"Double Cluster" words cannot describe it. In very rich field.

The Universe from Your Backyard

Author: David Eicher

The Universe from Your Backyard is a collection of Astronomy Magazine's Backyard Astronomer columns, hence the title. Due to popular demand, the staff at Astronomy have reprinted 46 of the columns covering 65 northern and southern hemisphere constellations in a handy, 188 page hardcover volume. The pages are lightly coated, similar but heavier than Astronomy magazine stock so they stand up well to the rigors of the field. I have taken it out and found it to be no worse for wear (after it has dried out).

Each constellation begins with a few photos of the more photogenic objects, followed by a title page containing a nice sketch of the mythical constellation superimposed with the stars, its name, abbreviation and genitive (possessive) form (not often given in a book of this type), a page or so of text with a box summarizing an object's vital specs along with a few nicely done sketches. Lastly, a full page chart of the constellation with white stars on a deep blue background follows.

I can't say enough good about the Backyard Astronomer column and hence this book. It fills the criteria of a good book as outlined above. It is portable: only 8 1/2" x 11" and 5/8" thick. It is arranged by constellation, which makes it very conducive to leisurely strolls through a region of the sky at any time you find yourself under the stars. Also, it makes it easy for someone to decide "what to look at tonight." Just look up a constellation! Lastly, the book tells more than just an object's position. From the text, it is clear that the author has been around and knows the subject well. In a discussion of the globular cluster M15 in Pegasus, the author explains that it is an X-ray source and is the only globular known to contain a planetary nebula. It goes on to explain about symbiotic star AG Pegasi, explaining its past optical history and why it is interesting. I found it very educational to read the commentary and descriptions while looking at the actual object! Doing that is what got me started in astronomy. Actually seeing the same objects that I was reading about!

For these reasons and many others, Astronomy from Your Backyard is now part of our astronomical library at the MAS Observatory. Check it out! (Pun intended!)

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Directory

President .....	Dr. Richard Wiesen .....	781-4757
Vice President .....	Mathew McNeeley .....	354-5347
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FOCAL POINT Editor .....	LeRoy Simandl .....	933-3052

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New Berlin, Wisconsin